# PATENT SPECIFICATION

694,460

Date of Application and filing Complete Specification March 1, 1951.

No. 5026/51.

Application made in France on Oct. 21, 1950.

Complete Specification Published July 22, 1953.

Index at acceptance :—Class 140, A2(b : c).

COMPLETE SPECIFICATION

## Composite Textile Material comprising a Felted Layer

I, NOEL PIERRE FRANCOIS SOMMER, of French Nationality, of 67, Quai d'Orsay, Paris, France, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement :—

It is already known, especially in the manufacture of felts, to subject certain of these felts to the action of combs having their points provided with barbs (Figure 1 of the accompanying drawings) which penetrate into the layers of felt, draw the fibres 1 (Figure 2 of the accompanying drawings) and form " pegs " 1' on the free surface of the felt, that is to say, tufts of fibres partially drawn through the exterior of that surface.

By this known process, felts are obtained having a strength which is considerably increased by the formation of the pegs, and which are then commonly known as needled felts.

It is likewise known to apply an adhesive covering layer to a felt having this structure.

On the other hand, it is known (Figure 3 of the accompanying drawings), especially in the manufacture of slippers, to use felt materials or other textiles 3, 4 held in juxtaposition to one another by the application of an adhesive 5 (for example, latex, rubber solution, gutta percha, synthetic rubber or gum).

Hitherto, in the majority of cases the backing 4 has consisted of knitted, fulled or woven felts which generally have the fibres of their visible surface 6 raised with a view to giving a warmer appearance.

The object of the present invention is to produce an equivalent article by using for the backing a needled felt obtained from a different textile material by a less expensive process.

Hitherto, it has not been possible to use needled felt for making such as article because, on the one hand it lacked strength and intrinsic toughness and, on the other hand, the adhesion was not sufficient for the juxtaposition onto any textile whatsoever.

According to the present invention in a composite textile material comprising a backing of felt and a textile covering material secured thereto by an adhesive the felt comprises tangled textile fibres and has, on the surface to which the covering material is secured, pegs or tufts of fibres drawn partly through to the outside of this surface, a layer of adhesive applied to the said surface serving to hold the tufts of fibres firmly and to amalgamate them, as well as to fix the covering material to the felt.

The adhesive layer fulfills two functions, namely: to hold firmly and to amalgamate the pegs of the needled felt backing, which increases the toughness of the felt, and to fix the covering material by virtue of the adhesion of the pegs to the covering, these functions assuring the necessary strength to enable the backing to be roughened, the textile material forming in short a whole having very good strength at a very advantageous cost price.

A textile material in accordance with the invention is shown in Figure 4 of the accompanying drawings which is a diagrammatic section of this textile material.

The following parts can be seen :—

a) A felt of tangled textile fibres 7 and drawn fibres 8 forming pegs 9;

b) A layer of adhesive 10 fixing and firmly holding the pegs 9:

c) A covering material 12 applied over the adhesive layer 10, and

d) A felt surface 11 of textile fibres, this surface being roughened to give a woolly appearance.

The layer of adhesive 10 fulfills two different but combined functions: it fixes and firmly holds the pegs 9 with the object described above, and it fixes the covering material 12, and it is only because there is a covering that the pegs

[P.

Price

are held with sufficient rigidity to permit roughening.

The operations necessary in this method of manufacture are as follows:—

The backing felt is manufactured in such form that the pegs produced by the needling will eventually be located within the final assembled textile.

The needling is carried out, in the usual way, on a needle loom fitted with combs having needles provided with barbs (Figure 1).

The final form of this felt is produced by the perforation of the needles which take part of the fibres situated on one of the surfaces and cause them to travel through the thickness of the felt and protrude through the surface on the other side, thus forming pegs. It is these pegs which, being held in the subsequent operations, serve the purpose of supporting the felt thus formed and increasing its toughness.

The needled felt so produced is treated on the surface containing the pegs by a "coating" machine to provide therein a layer or film of an adhesive. The said layer or film of adhesive may be applied instead to the covering material, or both the felt and the covering material may be so treated.

The fixing of the pegs by deposition of an adhesive may however advantageously be a separate operation from the adhesion of the surface textile which is itself fixed by a second layer of adhesive following the first.

The adhesive may comprise latex, rubber solution, gutta percha, vegetable gum, synthetic rubber, vinyl resin, or any other products for effecting adhesion.

Once the two textiles are assembled by the adhesive, they are maintained for the necessary time at the desired temperature to complete the adhesion. Good adhesion can consequently be ensured by maintaining the composite textile material in a heated press or mould for the necessary time.

When the whole is thoroughly united and the pegs are performing their function of holding the needled felt by virtue of the adhesive which itself holds it onto the surface textile, the assembly is then passed, if necessary, to a machine capable of making the fibres stand up, thus giving to the needled felt a woolly and roughened appearance analogous to the molleton, knitted fabric, felt or other textile which was previously used.

For this treatment there may be used a teazling machine or any other equivalent machine.

There is thus finally obtained a composite textile material having a toughness comparable with other similar textile materials comprising a molleton with warp and weft, such composite textile material permitting the suppression of the said molleton and consequently a advantageous cost price than that of the products previously known.

This invention relates to all textiles, felt fabrics, molleton, knitted fabric and other products which can be fixed in this manner on a needled felt and can be used for purposes such as: fabrics, coverings, shoes, slippers, underclothes, upholstering fabrics for carriage-work, industrial fabrics and felts.

What I claim is:—

1. A composite textile material comprising a backing of felt and a textile covering material (for example fabric, felt or knitted fabric) secured thereto by an adhesive wherein the felt comprises tangled textile fibres and has, on the surface to which the covering material is secured, pegs or tufts or fibres drawn partly through to the outside of this surface, a layer of adhesive applied to the said surface serving to hold the tufts of fibres firmly and to amalgamate them, as well as to fix the covering material to the felt.

2. A composite textile material according to claim 1, wherein the backing is roughened on its exposed surface.

3. A composite textile material substantially as described with reference to and as shown in Figure 4 of the accompanying drawings.

For the Applicant:
F. J. CLEVELAND & COMPANY.
Chartered Patent Agents.
29, Southampton Buildings,
Chancery Lane, London, W.C.2.

Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1953.
Published at the Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.

694,460 COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of the Original on a reduced scale.*

FIG. 1

FIG. 2

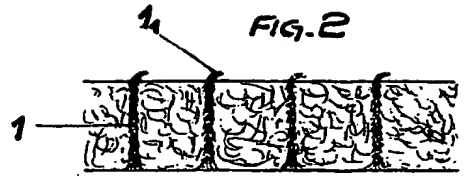


FIG. 3

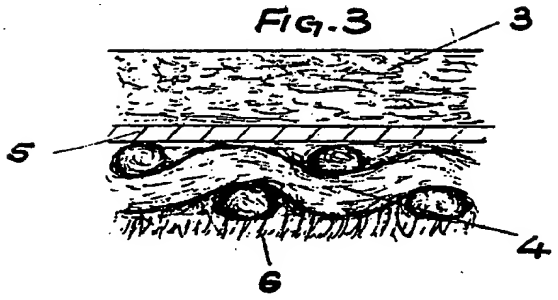


FIG. 4